

AP5025 8Watt Current Sense Chip Resistors



A very high power current sense chip resistor capable of dissipating a stunning 8 watts with recommended thermal management architecture on the PCB. Measuring just 12.8mm by 6.4mm the chip has excellent pulse/surge performance.



- Power Dissipation 8 watts with 700 micron PCB thermal Pad
- Value Range R0005 to R01
- Tolerance Options $\pm 1\%$ or $\pm 5\%$
- TCR Options $\pm 30\text{ppm}/^\circ\text{C}$
- Maximum Voltage $\sqrt{\text{P.R.}}$
- Dielectric Strength 5KVac
- Special Features An increase of 15°C or so in reflow temperature is required due to heat dissipation potential. Please request mounting guide
RoHS Compliant

Characteristics

	AP 5025 Specifications	Test Conditions
Resistance Values	R0005, R001, R002, R003, R004, R005, R010	
TCR	$\pm 50\text{ppm}/^\circ\text{C}$	Measured $\pm 30\text{ppm}/^\circ\text{C}$
Tolerance	$\pm 1.0\%$ (F), $\pm 5.0\%$ (J)	
Power Rating	8W	Attached
Current Rating	90A	At 1 m Ω
Maximum Current	126A	2.5 seconds one time
Series Inductance	5nH	
Operating Temperature	-55°C to 175°C	
Storage Temperature	-55°C to 175°C	
Short Time Overload	$\Delta R \pm (0.5\% + 0.5\text{m}\Omega)$	Maximum current, 2.5 seconds
Low Temperature Storage	$\Delta R \pm (0.5\% + 0.5\text{m}\Omega)$	-55°C , 24 hours
High Temperature Storage	$\Delta R \pm (1.0\% + 0.5\text{m}\Omega)$	$+175^\circ\text{C}$, 1000 hours
Heat Shock	$\Delta R \pm (0.5\% + 0.5\text{m}\Omega)$	-55°C to $+125^\circ\text{C}$, 20min. Interval, 5min. 5 cycles
Vibration	$\Delta R \pm (0.5\% + 0.5\text{m}\Omega)$	10-2000 Hz, 1.5mm/20gr, 2 hours
Soldering Heat	$\Delta R \pm (0.25\% + 0.5\text{m}\Omega)$	$260^\circ\text{C} \pm 5^\circ\text{C}$, 10 ± 1 second
Solderability	90%/terminal surface	
Humidity	$\Delta R \pm (0.5\% + 0.1\text{m}\Omega)$	85°C , 85% RH, dc0, 1W, 1000 hours
Load Life	$\Delta R \pm (0.5\% + 0.1\text{m}\Omega)$	25°C , dc rated power, 90 min ON, 30min OFF, 1000 hours

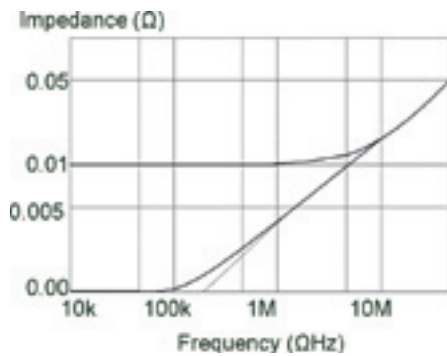
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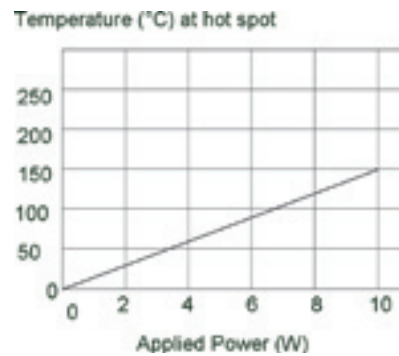
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It is the responsibility of the customer to ensure that the component selected from our range is suitable for the intended application. If in doubt please ask Arcol.

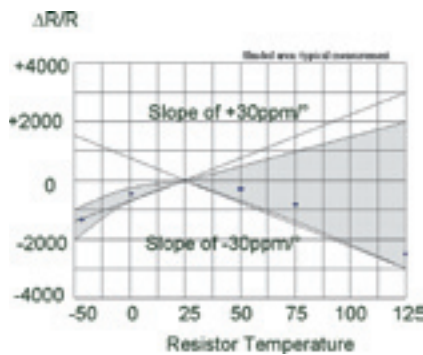
Frequency Characteristics



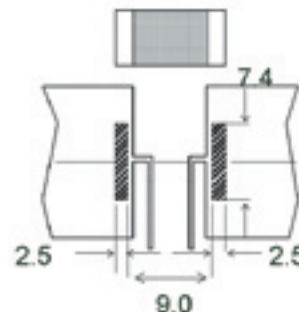
Temperature Rise



TCR Curves



Recommended Foot Print in mm



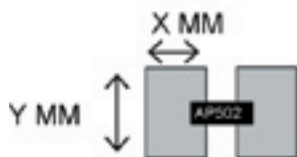
Soldering Recommendation

Due to the enhanced heat dissipation properties of the AP5025, the temperature profile during reflow soldering will need to be increased by 10 to 20°C.

Custom Designs

Alternative widths and lengths are available, please contact factory for details.

FR4 Thermal PCB Characterisation



Pad Dimensions (x,y mm)	P 90°C, 70µm (W)	P 90°C, 35µm (W)
60, 45	5.8	4.6
50, 45	5.4	4.3
40, 40	4.2	4.1
30, 30	3.5	2.8
20, 20	2.9	2.7
10, 10	2.4	2.5

Notes: Characterisation carried out using 70µm and 35µm. PCB copper pad weights, with the temperature of 90°C used as a maximum reference on the PCB.

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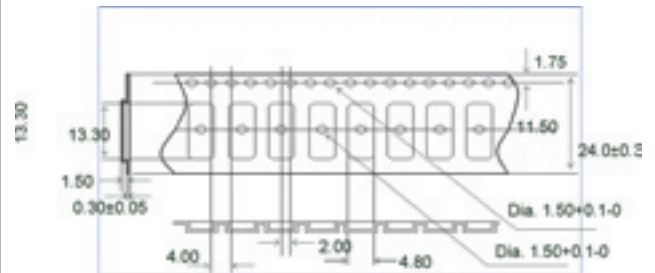
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Ordering Procedure

Standard resistor: Series, Resistance, Tolerance
e.g AP5025 R01 J

Packaging (dimensions in mm)



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